ABSTRACT

BACKGROUND:

A dental implant is a prosthetic device made of alloplastic material implanted into the oral tissue beneath the mucosa and or periosteal layer and or within the bone to provide retention and support for a fixed or removable dental prosthesis. Making a superstructure with passive fitness is one of the main objectives during implant-based prosthesis. Preparation of a precise mould with stable dimensions prior to casting is necessary to achieve this passive fitness failing which can lead to fracture of the implant components. The impression techniques that are used in implants are open tray and closed tray techniques. Both can result in dimensional inaccuracy that can lead to failure of the final abutment.

AIM AND OBJECTIVE:

To compare the dimensional accuracy and the better impression technique between open tray and close tray impression techniques while using multiunit abutments in dental implants.

MATERIAL AND METHODS:

The research was done through an experimental laboratory method on 10 input samples in each group and a master sample forming a total number of 21 samples. Every two angulated implants were 4 cm apart with 3.5 cm distance from central implant and the position of implants were at a divergence or convergence of 17° and 28^{o} respectively from the central component. Stock trays made of metal were customised with tray handles to be attached to the surveyor and polyvinylsiloxane impression material was used. In open tray technique, the guide pins were loosened using hex-driver and were removed. Then, the tray was detached from the main cast with the copings being remained in the mould, while analogue of the implant was connected to the impression copings. Impression copings of the closed tray remained on the main cast after polymerization of the impression material. These copings were removed from the main cast and connected to the analogue when the tray was removed. Analogue

units of the compound coping were placed deep in the impression by applying pressure with complete or partial clockwise rotation till a resistance against rotation was felt. The impression was examined and it was repeated when any kind of deficiency was observed including trapped air bubbles and leftovers of impression material between the coping connection and the analogue. Dental stone, high strength (type IV) cast was then prepared that were trimmed and coded after being cured for one hour. The casts were analysed by CMM (coordinating measuring machine, GMT Germany). Statistical analysis adopted in this study was Student t-test.

RESULTS:

Statistically significant p value was achieved only for implant 1 of the open tray and closed tray impression techniques. When implant 1 was compared for difference in mean from the control, open tray method showed lesser deviation from the standard, and hence better accuracy in impression

CONCLUSION:

The results of the present study show that open tray impression technique produces better dimensional accuracy when compared to closed tray impression technique when used for multi-unit abutment implants

KEY WORDS:

Multi-unit abutments, Dental implants, Passive fitness, open tray impression technique, closed tray impression technique.